

DO WEDGE-TAILED SHEARWATERS EXHIBIT RIGHT FOOTEDNESS?

By WESLEY J. BANCROFT

3 Gregona Place, Kalamunda, WA 6076.

Email: wes@graduate.uwa.edu.au

SUMMARY

The preferential use of one foot for manipulative tasks is common in some families of birds but has not been reported in others, including the Procellariidae. I assessed burrow curvature in a colony of Wedge-tailed Shearwaters on Rottnest Island, Western Australia, and suggest that there is a bias towards right footedness in this population.

during take-off or landing, or scratching (Rogers and Workman 1993). For some species, the laterality bias is evident at the population level, with most populations being left footed (Noske 1985; Rogers and Workman 1993). Footedness in the Procellariidae (fulmars, petrels, prions and shearwaters) has not been reported in the literature.

INTRODUCTION

Lateralisation of function in the avian brain can lead to behavioural asymmetry; where one side of the body is favoured for particular tasks (Kaplan and Rogers 2001). Footedness is a common phenomenon among some families of birds, particularly the falcons (Falconidae), hawk owls (Strigidae), cockatoos (Cacatuidae), parrots (Psittacidae) and corvids (Corvidae: Kaplan and Rogers 2001; Csermely 2004). In these groups, individual birds show a preference for using a particular foot for manipulative tasks associated with feeding,

METHODS

During a study of burrow morphology at a Wedge-tailed Shearwater (*Puffinus pacificus*) colony at Radar Reef, Rottnest Island, Western Australia (see Bancroft *et al.* 2004) it was noticed that all inspected burrows were curved in shape and that more curved to the left (when viewed facing the burrow mouth). As a result, in May 2003, the direction of curvature of 200 randomly selected burrows was recorded as left or right of the midline at the burrow mouth, when viewed facing the burrow mouth. A burrow was assessed by inserting a length of reticulation polypipe (13 mm diameter) until

it reached the end of the burrow and then scoring the direction of curvature.

RESULTS AND DISCUSSION

Sixty-one percent of burrows curved to the left, relative to the burrow mouth when facing the burrow, which significantly differed from random ($\chi^2 = 9.68$, d.f. = 1, $P = 0.002$).

From this study it appears that the Wedge-tailed Shearwater population at Radar Reef may exhibit a moderate degree of footedness. Shearwaters face into the burrows as they dig (Marchant and Higgins 1990) so, in digging left curving burrows, the right foot of the birds would need to dominate. If this is the case then the birds are demonstrating a population bias towards right footedness; an unusual occurrence among birds (Rogers and Workman 1993). It would be interesting to see if this phenomenon occurs consistently at other Wedge-tailed Shearwater and, indeed, other procellariid colonies.

REFERENCES

- BANCROFT, W.J., HILL, D. and ROBERTS, J.D. 2004. A new method for calculating volume of excavated burrows: the geomorphic impact of Wedge-tailed Shearwater burrows on Rottneest Island. *Functional Ecology* 18: 752–759.
- CSERMELY, D. 2004. Lateralisation in birds of prey: adaptive and phylogenetic considerations. *Behavioural Processes* 67: 511–520.
- KAPLAN, G. and ROGERS, L.J. 2001. *Birds: Their Habits and Skills*. Allen & Unwin, Crows Nest, New South Wales, Australia.
- MARCHANT, S. and HIGGINS, P.J. (eds). 1990. *Handbook of Australian, New Zealand and Antarctic Birds. Volume 1: Ratites to Ducks*. Oxford University Press, Melbourne, Australia.
- NOSKE, R.A. 1985. Left-footedness and tool-using in the Varied Sittella *Daphoenositta chrysoptera* and Crested Shrike-tit *Falcunculus frontatus*. *Corella* 9: 63–64.
- ROGERS, L.J. and WORKMAN, L. 1993. Footedness in birds. *Animal Behaviour* 45: 409–411.